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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

|                                 |   |                      |
|---------------------------------|---|----------------------|
| In the Matter of                | ) |                      |
|                                 | ) |                      |
| Access Charge Reform            | ) | CC Docket No. 96-262 |
|                                 | ) |                      |
| Price Cap Performance Review    | ) | CC Docket No. 94-1   |
| of Local Exchange Carriers      | ) |                      |
|                                 | ) |                      |
| Transport Rate Structure        | ) | CC Docket No. 91-213 |
| and Pricing                     | ) |                      |
|                                 | ) |                      |
| Usage of the Public Switched    | ) | CC Docket No. 96-263 |
| Network by Information Services | ) |                      |
| and Internet Access Providers   | ) |                      |

REPLY COMMENTS OF AMERITECH

Frank M. Panek  
Counsel for Ameritech  
4H84  
2000 West Ameritech Center Drive  
Hoffman Estates, IL 60196-1025

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**I. INTRODUCTION AND SUMMARY.**

Ameritech respectfully submits its Reply Comments in the above-captioned matter in support of a Notice of Proposed Rulemaking ("NPRM") to determine the appropriate pricing for enhanced service provider ("ESP") traffic, and to establish proper economic incentives that enable the industry to deploy (and the ESPs to use) network configurations which efficiently handle Internet data traffic.

## II. THE PUBLIC SWITCHED TELEPHONE NETWORK ("PSTN") IS NOT WELL-SUITED TO HANDLE A LARGE VOLUME OF INTERNET DATA TRAFFIC.

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One common theme in the comments is that a data network can more efficiently and economically handle Internet access than does today's circuit-switched PSTN. The reason is that there is a fundamental difference between the type of transmission that efficiently handles data traffic (such as Internet calls) as compared to voice traffic. Generally, data calls are of much longer duration than voice calls and involve periodic short bursts of data. The fundamental problem with using the PSTN to handle Internet calls is that these data calls tie up a communications path during its entire duration, even though there is long periods of time when no data is being transmitted.

To send a data message efficiently, it is first broken into "packets" and these "packets" are sent over a data network and re-assembled at the terminating end. Many packets comprise a single data message. All that matters is that all the packets arrive at the end point, where they are reassembled. By way of comparison, a voice call over the switched PSTN requires a continuous communication path between the two parties involved in an on-going conversation, whereas a data call over a packet-switched network does not require a continuous path, as long as the network is available to accept and properly route each packet of data so it can be re-assembled at the terminating end.<sup>1</sup>

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<sup>1</sup> See generally, OPP Working Paper Series 29, "Digital Tornado: The Internet and Telecommunications Policy," March, 1997. pg. 16-18.

In examining the issue of access to the Internet it is important to understand that this traffic is data traffic. For this reason, it is obvious to Ameritech, as well as many other parties,<sup>2</sup> that there are efficiencies to be gained by developing a data network to consolidate and handle the transmission of these Internet data "packets" on high capacity shared facilities. Now is the time to facilitate development of the information infrastructure, by incenting data users and service providers to move to this more efficient architecture.

Throughout this proceeding and the access reform proceeding, parties have had differing positions as to the current level of network congestion on the PSTN caused by the explosion of Internet usage. However, regardless of the differences of opinion on the current level, virtually all parties acknowledge that network congestion is likely to occur in the near future, given today's projections of expected Internet traffic growth.<sup>3</sup> Ameritech can substantiate that there are noticeable adverse impacts from extended data connections (i.e., Internet sessions) in its network today, and projects that the situation will get worse as Internet traffic continues to grow. Internet-related traffic has impacted Ameritech's network today as follows.

A. Changing Traffic Patterns.

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<sup>2</sup> See, for example, MCI, pg. 10-11.

<sup>3</sup> AT&T, pg. 22 and MCI, pg. 11.

Ameritech agrees with US West that usage characteristics of ESPs, particularly ISPs, place a significant strain on the circuit-switched PSTN.<sup>4</sup> Specifically, rapid changes in call volumes, shifts in office busy hours, and very long average call duration times have manifested themselves in a growing number of network congestion problems.

Consistent with consensus of comments in this proceeding,<sup>5</sup> an internal Ameritech study confirmed that Internet traffic hold times (call duration) are about six times greater than voice traffic. On the average, the holding time of a voice call is slightly greater than four minutes in length, as compared to a conservative average of 23 minutes for an Internet call. These long hold times on data calls greatly increase the load on the PSTN because today's capacity engineering standards and PSTN are not designed to support the rapid growth in ISP access requirements and the corresponding long call holding times.<sup>6</sup> Thus, capacity has had to double in some Ameritech central offices.

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<sup>4</sup> ESP Study, "Impacts of the Internet on US West's PSTN, pg. 12.

<sup>5</sup> Pacific Bell, "Surfing the 'Second-Wave', Sustainable Internet Growth and Public Policy," pg. 3, GTE pg. 8, Sprint pg. 2, Southwestern Bell pg. 10, Bell Atlantic-Attachment C, pg. 2.

<sup>6</sup> The rates for local calls, including reciprocal compensation rates, also do not reflect such long holding times.

## B. Customer Service.

In order to better understand the effects of Internet access on customer service, Ameritech initiated a study to analyze network congestion and its impact on Ameritech's network. This study revealed that Ameritech's network has experienced some 66 network congestion situations attributable to Internet-related usage over the past two years. As could be expected, Ameritech has experienced a recent rapid acceleration of these congestion problems after the late-1996 adoption of flat-rate pricing policies by major providers of on-line services.<sup>7</sup>

A typical example of Internet-access-related congestion problems that have occurred, arose in late 1996 when Ameritech experienced unexpected, recurring and severe blockage in its Downer's Grove central office in Illinois due to a sudden surge in Internet access calls. Ameritech added three switch modules and fourteen line units in an attempt to relieve the congestion. By rebalancing the line side of the switch Ameritech reduced the demand on the existing switch modules and ensured a more even distribution of the traffic load. Ameritech added five line units to accommodate the growth demand, to help ensure resolution of the problem. The office was re-concentrated to an 8:1 ratio. This action reduced the number of lines per line unit from 640 to 512 and raised the call carrying capability. This expedited work cost Ameritech \$1.6M.

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<sup>7</sup> Over 75% of the 66 identified situations occurred during this period.

As also noted by other LECs, Ameritech is finding that the explosive growth in Internet usage and changing traffic patterns are causing dial tone delay, switch blockage, and interoffice trunk blockage in the circuit switched network.<sup>8</sup> The ISPs, the ISP end users, as well as customers using basic local exchange service for voice calls, are all experiencing these adverse effects.

To date, Ameritech has been able to effectively manage network congestion situations by utilizing "best practices" load balancing and advancement of significant investment to increase capacity in the affected offices to minimize these impacts of Internet access. However, based on Internet usage growth forecasts by Ameritech and others<sup>9</sup> that Internet usage will continue to explode, the cost of supporting that traffic over the PSTN will become exceedingly costly.

#### C. Increased Costs.

Similar to Pacific Bell,<sup>10</sup> the greatest impact on Ameritech's voice PSTN has been on capacity requirements and related costs for central offices serving ISP points-of-presence (POPs). Of Ameritech's 1,410 central offices, approximately one-third act as hubs concentrating Internet traffic. In fact, in one central office in Ohio, office trunks were increased from 1,500 to 2,700, at a cost of nearly \$2M, to alleviate Internet-caused network congestion.

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<sup>8</sup> Pacific (Exhibit A), pg. 11-14 Bell Atlantic/NYNEX Attachment C.

<sup>9</sup> US West ESP Study pgs. 10-11, Pacific Bell "Surfing the Internet 'Second-Wave' Sustainable Internet Growth and Public Policy," pgs. 5-8.

<sup>10</sup> Pacific pg. 3.

Additional necessary network congestion interventions to date have typically included:

- expediting growth jobs (growing switches)
- rebalancing lines and trunks
- aggressively changing concentration ratios
- installing additional trunking facilities

It is universally agreed that the current methods of utilizing circuit switching to carry ISP traffic, which is data in nature, is not adequate for future ISP growth. Most parties also agree that it will be necessary to move toward a more data-efficient, packet-switched network which provides additional bandwidth capabilities and consolidates data calls on a limited number of high capacity trunks and packet switches.<sup>11</sup> Ameritech's overarching goal is to maintain network quality and reliability for all of its customers by effectively managing high volume, long duration Internet data sessions. Ameritech agrees that technical solutions (such as ATM circuit emulation, ADSL, frame relay, modem dial up/modem pools, and ISDN) exist and will be deployed and used as technical alternatives, given the proper economic incentives.

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<sup>11</sup> Bell Atlantic/NYNEX-Attachment E, Bell South pgs. 4-7; Pacific Bell pgs. 36-38; Southwestern Bell pgs. 6-9.

### III. THE CURRENT REGULATORY FRAMEWORK DOES NOT PROVIDE APPROPRIATE ECONOMIC INCENTIVES.

The fundamental problem with transitioning Internet traffic onto a data network is that the current rate structures do not create the proper economic incentives for LECs, Internet providers, or users to deploy or use such a network. For example, charges for local usage in many areas are included in the local exchange rate, or are flat rated (a flat charge per call regardless of its length). The result is that as long as local rates apply to Internet calls, there is no incentive for Internet users or providers to control the duration of calls, or to switch to a more efficient data network. Thus, the solution is to create proper economic incentive by adopting cost-based rates for Internet access.

#### A. The "ESP Exemption" Subsidy.

The ESP exemption grew out of concern for the impact of assessing access charges on the nascent information industry, in the midst of change in the industry. Characterizing that period as a "dynamic transitional period for the enhanced services industry,"<sup>12</sup> the Commission noted that "withdrawal of existing access arrangements could have had disruptive effects on that industry, thereby jeopardizing achievement of ONA objectives."<sup>13</sup> This subsidy was intended solely

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<sup>12</sup> BOC ONA Order, 4 FCC Rcd. At 169-70, ¶1322.

<sup>13</sup> NPRM CC Docket No. 89-79, 4 FCC Rcd. At 3987, ¶133.

as a transitional arrangement to allow ONA to be realized and to allow the information/enhanced services industry to gain a firm foothold.<sup>14</sup>

On several occasions, the Commission has re-examined the ESP Exemption subsidy,<sup>15</sup> declining each time to assess interstate access charges on the enhanced services industry.<sup>16</sup> However, the rate of change in the telecommunications marketplace at that time was still tranquil and the industry still in its infancy when compared to the turmoil and explosive growth that characterizes the industry today. The subsidy that the exemption embodies is now a barrier to deployment and use of packet-switched data technology that the industry agrees would far more efficiently handle data traffic.<sup>17</sup>

To provide appropriate economic incentives, the Commission should start removing the underlying subsidy that currently anchors Internet users and providers to the circuit-switched network. For this reason, Ameritech believes that elimination of the ESP exemption will provide the necessary incentive.

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<sup>14</sup> Ibid, ¶29.

<sup>15</sup> Amendments of Part 69 of the Commission's Rules relating to Enhanced Service Providers, 2 FCC Rcd. 4305; CC Docket No. 87-215, 3 FCC Rcd. 2631.

<sup>16</sup> . . . to the extent the exemption may be discriminatory, it remains, for the present, not an unreasonable discrimination within the meaning of §202(a) of the Communications Act of 1934. (emphasis added); 3 FCC Rcd. 2633, ¶19, See also, NARUC v. FCC, 737 F. 2d 1095.

<sup>17</sup> AT&T, pg. 17; AOL pg. 4; Internet Users Coalition, pg. 99; Hal R. Varian (U of C Berkeley) pg. 2.

However, the Commission might also find other options that will further facilitate the smooth transition to a data network supporting Internet access.<sup>18</sup>

**B. Reciprocal Compensation.**

The existing ESP exemption, which applies local rates to Internet traffic and has led some CLECs claim that reciprocal compensation applies to Internet access. This outcome would cause these CLECs to actively market their services to ISPs, so that the incumbent LECs have to pay significant amounts in reciprocal compensation for the termination of ESP traffic. The problem is that new entrants are seeking a quick immediate source of revenue, even though it leads to network inefficiency. As expressed in some of the comments,<sup>19</sup> reciprocal compensation is intended to apply to the exchange of local traffic between interconnecting carriers, not Internet data traffic that is interstate in nature and has none of the normal characteristics of a local call. Ameritech urges the Commission to affirm, as many commenters point out, that the ESP traffic is still access traffic which is interstate in nature and therefore not eligible for reciprocal compensation, even though it is currently exempted from network access charges.<sup>20</sup>

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<sup>18</sup> A possibility might be to provide a framework for states to implement usage based end user pricing changes more in line with Internet usage patterns. See also Pacific Bell Surfing the Second Wave Sustainable Internet Growth and Public Policy, pg. 28.

<sup>19</sup> Bell Atlantic/NYNEX, pg. 13-15.

<sup>20</sup> See, for example, Bell Atlantic/NYNEX, pgs. 13-15, and SNET pgs. 9-11.

#### **IV. THE FCC POLICIES SHOULD PROMOTE DEPLOYMENT OF DATA TECHNOLOGIES.**

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As indicated in Section III, Ameritech believes that it is necessary to remove incentives for ESPs to continue using voice networks to transport data traffic that is increasingly taxing the capabilities of a circuit-switched network to support the volumes, duration, and speeds required by both ESPs and end users, and inflating the costs of providing and maintaining the PSTN.

Ameritech urges the Commission to establish a rulemaking to determine specific pricing rules for ESP traffic that reflect the underlying cost of providing the service and establish proper economic incentives for the industry to deploy (and the ESPs to use) new data communications technologies that better accommodate data services. The Commission should adopt policies that facilitate the deployment of new data technologies with a reasonable prospect of cost recovery from the cost-causer. Ameritech agrees with Kevin Werbach, FCC Office of Plans and Policy, that "the goal of policymakers should be to create incentives that encourage efficient results, rather than choosing any one [technical] solution."<sup>21</sup> In any event, the deployment of data communications technologies to support Internet access should not be subject to burdensome regulations.

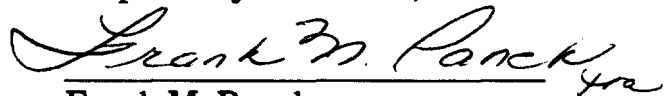
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<sup>21</sup> OPP Working Paper Series 29, Digital Tornado: Internet and Telecommunications Policy, March, 1997, at ¶261.

## VI. CONCLUSION.

For the reasons explained, the Commission should initiate a Notice of Proposed Rulemaking, separate from CC Dockets 96-262 and 96-263, to address issues raised in this NOI. The NPRM should focus on establishing correct economic incentives for Internet access that result in development and deployment of efficient data communications technologies that better accommodate data services, by creating a reasonable opportunity for all LECs to earn a fair return on their investment. Given the exponential growth expected in Internet traffic, a well-balanced, forward looking approach should be developed to eliminate the potential threat to reliable service on the PSTN, while at the same time providing a vehicle to encourage further healthy growth of the data information services.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Frank M. Panek", with a horizontal line underneath it.

Frank M. Panek  
Counsel for Ameritech  
4H84

2000 West Ameritech Center Drive  
Hoffman Estates, IL 60196-1025  
(847) 248-6064

Dated: April 23, 1997

**CERTIFICATE OF SERVICE**

I, Todd H. Bond, do hereby certify that a copy of the foregoing Reply Comments of Ameritech has been served on all parties of record, via first class mail, postage prepaid, on this 23rd day of April, 1997.

By: Todd H. Bond *tra*  
Todd H. Bond